Primary Caffeine Dependence: A Case Report

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We present a case of primary caffeine dependence based on the exclusive use of over-the-counter caffeine tablets. Caffeine has recently undergone scrutiny as a co-morbid risk factor with other substance dependencies, and in other medical and psychiatric conditions. Caffeine withdrawal also is briefly discussed with attention given to personality factors and the use of nicotine. Although caffeine generally is considered safe in usual doses, it is a substance potentially able to result in serious dependence. We cite a case which also illustrates that a supportive inpatient milieu may be necessary in order to interrupt a cycle of heavy caffeine use resulting in marked dependence.

Introduction

Despite its ubiquitous use[1,2,3] and acceptance as a relatively safe drug, caffeine has recently come under scrutiny as a potent pharmacologic agent that exerts significant effects on a number of organ systems. Investigators have examined the possible adverse role of caffeine in affecting hypertension, coronary artery disease, hyperlipidemia, irritable bowel syndrome, peptic ulcer and pancreatic cancer[3,4]. Psychiatric literature has reported that caffeine has exacerbated panic disorder[5], anxiety[6,3], depression[6], schizophrenia[7] and insomnia[1,3,6]. In addition, caffeine has received recent interest as a risk factor for relapse among patients suffering from alcohol or nicotine dependence[8].

Epidemiologic evidence suggests that the average intake of caffeine by adult Americans is approximately 200 mg to 220 mg a day[1,3], and that intake in excess of 788 mg a day probably occurs in only 0.1% of the population[1], which would correspond to the intake of approximately 9 cups of brewed coffee. Our report describes primary caffeine dependence in an otherwise healthy man and illustrates that caffeine itself, regardless of co-existing medical or psychiatric conditions, has the potential to act as a drug that can be abused with serious consequences.

Case Report

The patient was a married 29-year-old man who was referred to the Psychiatric Inpatient Service of Tripler Army Medical Center (TAMC) for treatment of primary caffeine dependence. The medical history revealed in addition a consumption of 40 to 60 cigarettes a day for 11 years, but otherwise, the patient had no significant medical or psychiatric problems or history of alcohol or illicit drug abuse. The patient began the use of over-the-counter caffeine tablets approximately 10 years prior to admission. He began taking one or two 100 mg tablets at night to help him remain alert while moonlighting at a second job. The patient's primary job as a radio operator required protracted attention to detail in an often lengthy procession of incoming traffic messages, which then required prioritization and dissemination. Shifts lasting from 8 to 15 hours heightened the appeal of caffeine's stimulating effect. As tolerance developed, the patient increased his dosage pattern to 3 or more times a day for a total daily consumption of 1600 to 2000 mg. A typical regimen consisted of two 200 mg caffeine tablets 4 times a day. The patient's longest period of abstinence was 6 months, after he was moved from shore duty onto a ship where caffeine tablets were not available. Interestingly, he denied the use of caffeine-containing beverages. When asked why he sought help to stop his use of caffeine, he cited a chief complaint of recurrent withdrawal headaches (which he medicated with 1 to 2 caffeine tablets), as well as chronic irritability and an increasing concern for his long-term health.

Because he had demonstrated the inability to stop the use of caffeine on his own, he was admitted to Inpatient Psychiatry in order to provide environmental and pharmacologic support in case of serious caffeine withdrawal symptoms.

On day 1, he denied headache but complained of generalized anxiety and a sense of feeling trapped. On day 2, he complained of a dull, bifrontal headache of an intensity 5/10 associated with nasal fullness (this responded to Motrin and Actifed), as well as generalized fatigue. On day 3 his headache was significantly reduced to 1 to 2/10. His daytime sleep reduced from 4 hours to approximately 1 hour. On day 4, he began to experience an increased subjective sense of energy and well-being and no longer asked for medication for headache. On day 5, he again experienced significant daytime somnolence requiring several naps. Day 6 was essentially without physical complaint, and he was discharged on day 7.

At no time did he complain of cardiac symptoms, muscle tension, tremulousness, nausea or dyspepsia. Although irritable at times, his affect was appropriate in the milieu of the ward and he was a highly verbal participant in group sessions.

Discussion

Primary caffeine-dependence is rare. Pathologic consumption of caffeine is most often associated with an attempt to manage intentional or inadvertent withdrawal from amphetamine or other sympathomimetic drugs. This patient's

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consumption of caffeine in tablet form, coupled with his distaste for caffeine-containing foods and beverages, reinforces the notion that the consumption is for the sole purpose of achieving an altered state (psychotropic effect).

Our patient clearly met the diagnostic criteria for psychoactive substance-use disorder. Over time he had consumed caffeine in even larger amounts, more than he had intended, and his history revealed unsuccessful attempts to control this abuse. He had achieved marked tolerance. He had experienced an abstinence syndrome and he had taken caffeine to relieve or avoid these withdrawal symptoms. He had continued its use despite the presence of negative consequences and he was concerned about his long-term health.

The patient's withdrawal symptoms were uncharacteristically mild; his response to Motrin and Actifed was unexpected but gratifying. Caffeine-withdrawal headache is classically reported to be of a severe, generalized, vascular type accompanied by photophobia and nausea in 25% of sufferers.[2,6]. Traditional treatment regimens are those used in cases of severe migraine. A partial explanation for this patient's relatively mild withdrawal is not unusual considering the wide range of individual differences in both tolerance and withdrawal from methylxanthines. Personality factors including extroversion, tendency to avoid somatization, and self-assessment of overall good health (this patient displayed all) have been associated with the ability to tolerate and enjoy the effects of high doses of caffeine[1,2].

These personality traits also have been associated with a decreased intensity of withdrawal headaches. A significant factor could be that the patient smoked cigarettes, since nicotine has been shown to decrease significantly the plasma half-life of caffeine by as much as 50%[6,9]. In addition, the patient's reported withdrawal symptoms during previous attempts to discontinue caffeine were apparently much worse than the withdrawal he reported while he was hospitalized. This suggests that the additional psychological factors were operating within the inpatient milieu. Thus, removing the patient from his regular daily stressors, providing pharmaco-

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logic support of his withdrawal symptoms and providing an aura of safety in the ward may have been instrumental in interrupting the cycle of compulsive abuse in this case.

In cases involving heavy compulsive caffeine use such as this, brief inpatient hospitalization deserves consideration.

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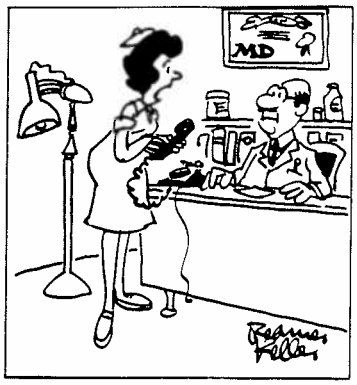

"HE SAID HIS RECOVERY WAS A MIRACLE, SO HE SENT THE CHECK TO THE CHURCH INSTEAD OF YOU!"